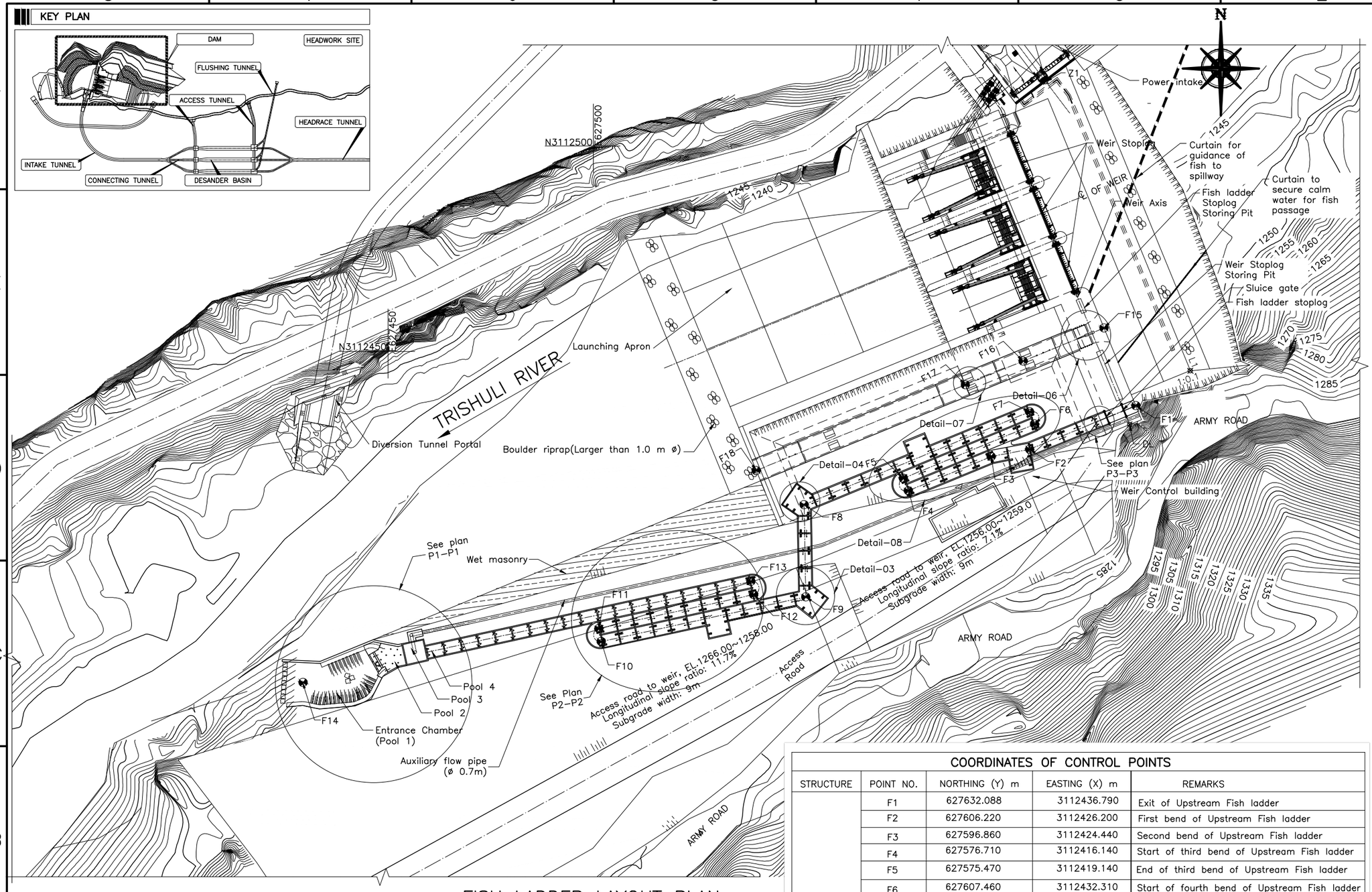
KEY PLAN



FISH LADDER LAYOUT PLAN

Scale 1:1000

COORDINATES OF CONTROL POINTS

STRUCTURE	POINT NO.	NORTHING (Y) m	EASTING (X) m	REMARKS
Upstream Fish ladder	F1	627632.088	3112436.790	Exit of Upstream Fish ladder
	F2	627606.220	3112426.200	First bend of Upstream Fish ladder
	F3	627596.860	3112424.440	Second bend of Upstream Fish ladder
	F4	627576.710	3112416.140	Start of third bend of Upstream Fish ladder
	F5	627575.470	3112419.140	End of third bend of Upstream Fish ladder
	F6	627607.460	3112432.310	Start of fourth bend of Upstream Fish ladder
	F7	627606.220	3112435.320	End of fourth bend of Upstream Fish ladder
	F8	627551.320	3112412.710	Fifth bend of Upstream Fish ladder
	F9	627551.720	3112390.300	Sixth bend of Upstream Fish ladder
	F10	627502.040	3112379.450	Start of seventh bend of Upstream Fish ladder
	F11	627501.340	3112382.630	End of seventh bend of Upstream Fish ladder
	F12	627539.050	3112390.860	Start of eighth bend of Upstream Fish ladder
	F13	627538.360	3112394.030	End of eighth bend of Upstream Fish ladder
	F14	627429.340	31123769.470	Start of upstream fish ladder
Downstream Fish ladder	F15	627624.336	3112455.715	Entrance of downstream fish ladder
	F16	627604.612	3112447.642	First drop of downstream fish ladder
	F17	627590.559	3112441.881	Second drop of downstream fish ladder
	F18	627539.663	3112421.035	Exit of downstream fish ladder

NOTE

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6. Hydro mechanical structures shown in drawing are only for reference.

m 10 0 10 20 30 40m

Scale 1:1000

REFERENCE DRAWINGS

UT1-C-020-CVL-DG-44004-0A	CONCRETE OUTLINE DRAWING OF WEIR

SYMBOL AND LEGEND

- C24/Primary Concreting
- Backfill
- C21 Concrete
- Elevation lines
- C30 Concrete
- C50 Concrete
- C18 Concrete
- Section lines

FOR APPROVAL

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0A	05.JUNE.2023	SECOND ISSUE	LUO	B. CHOI	Y.S.SON
0	19.OCT.2022	FIRST ISSUE	DONG Z.Z.	K.J.KIM	Y.S.SON

PROJECT TITLE

Upper Trishuli-1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGINEERING

jade CONSULT

CONTRACTOR

DOOSAN Enerbility

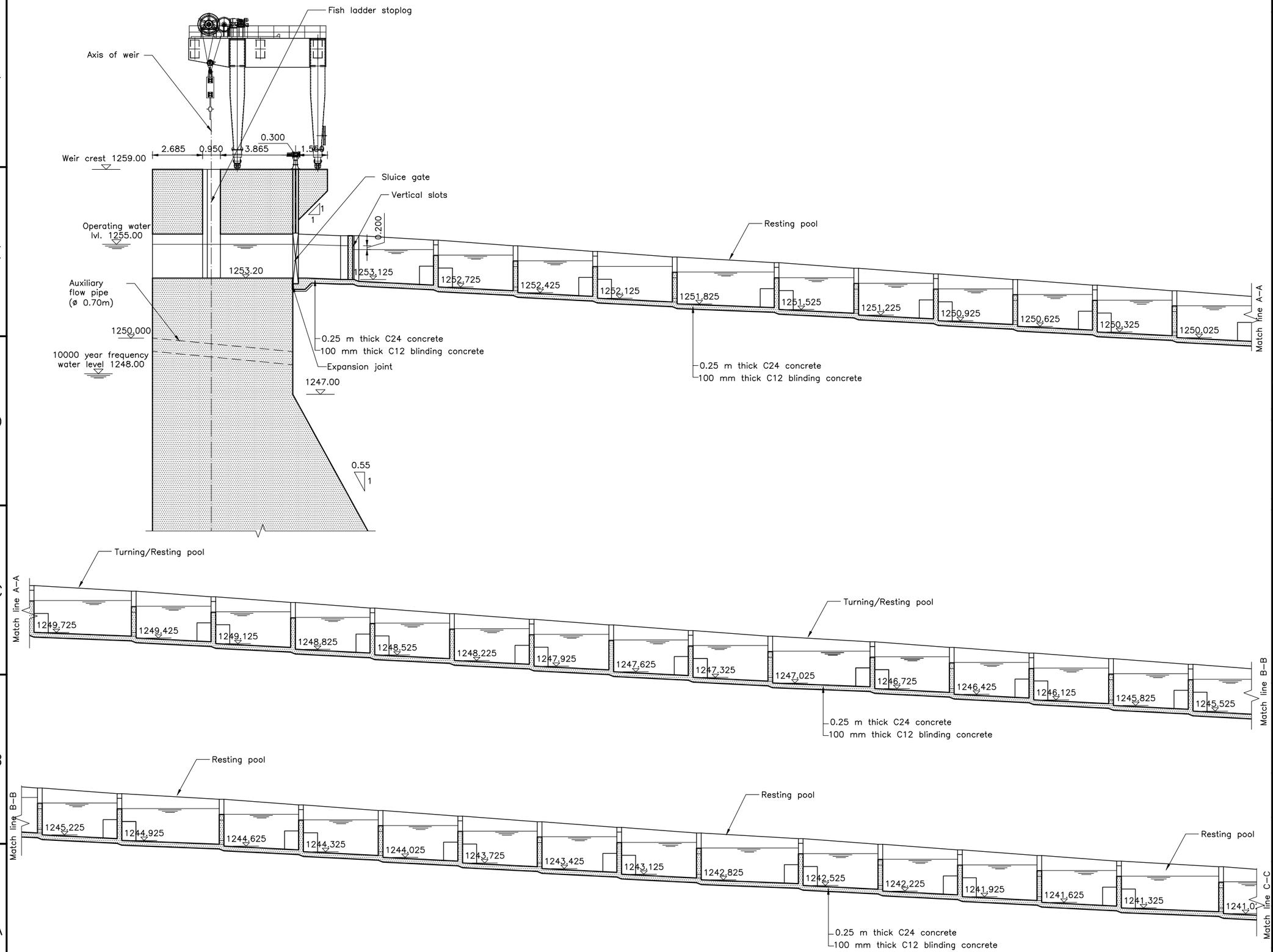
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

PLAN

DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-050-CVL-DG-49001	01 OF 19	0B

A3 (297 x 420 mm)



LONGITUDINAL PROFILE OF FISH LADDER

Scale 1:200

NOTE

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m 2 0 2 4 6 8 m

Scale 1:200

REFERENCE DRAWINGS

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PROJECT TITLE

Upper Trishuli-1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE · Jade Consult

CONTRACTOR

DOOSAN Enerbility

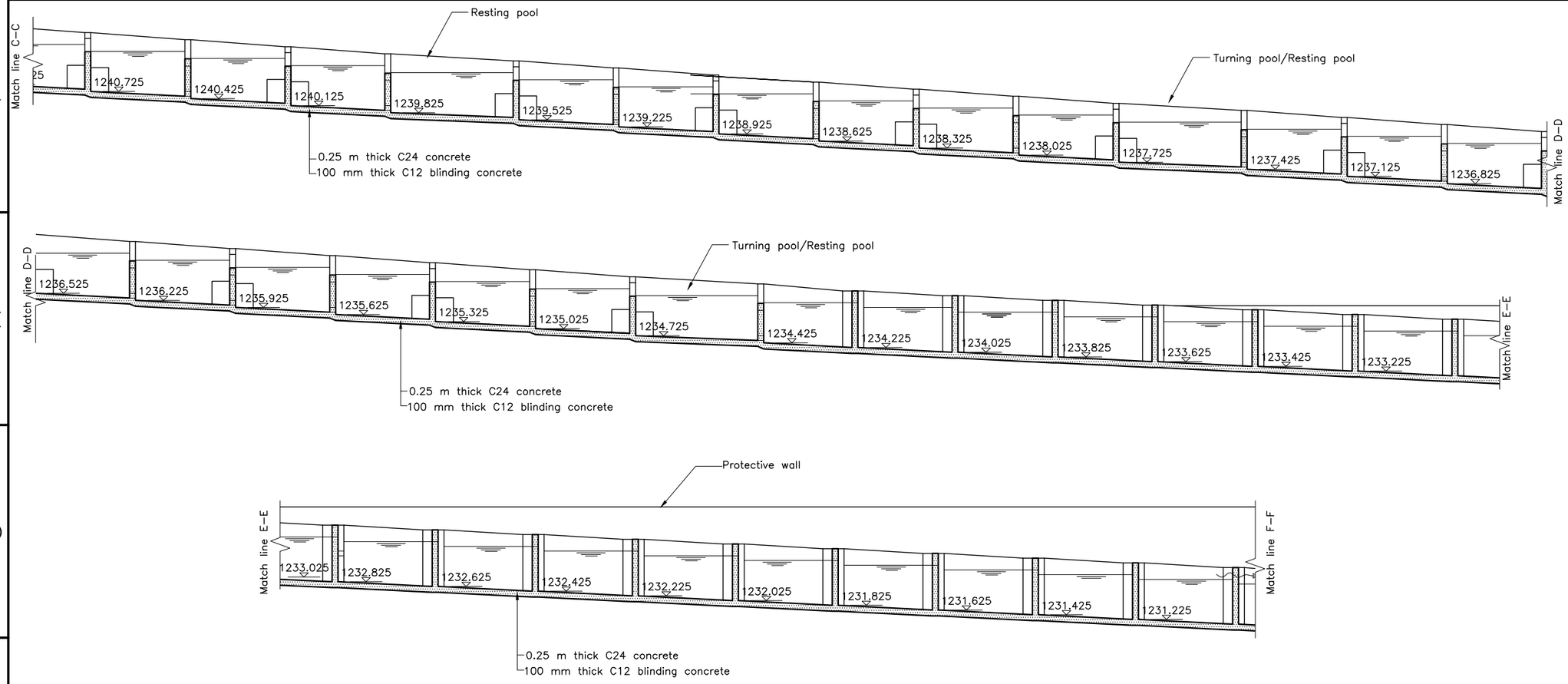
DRAWING TITLE

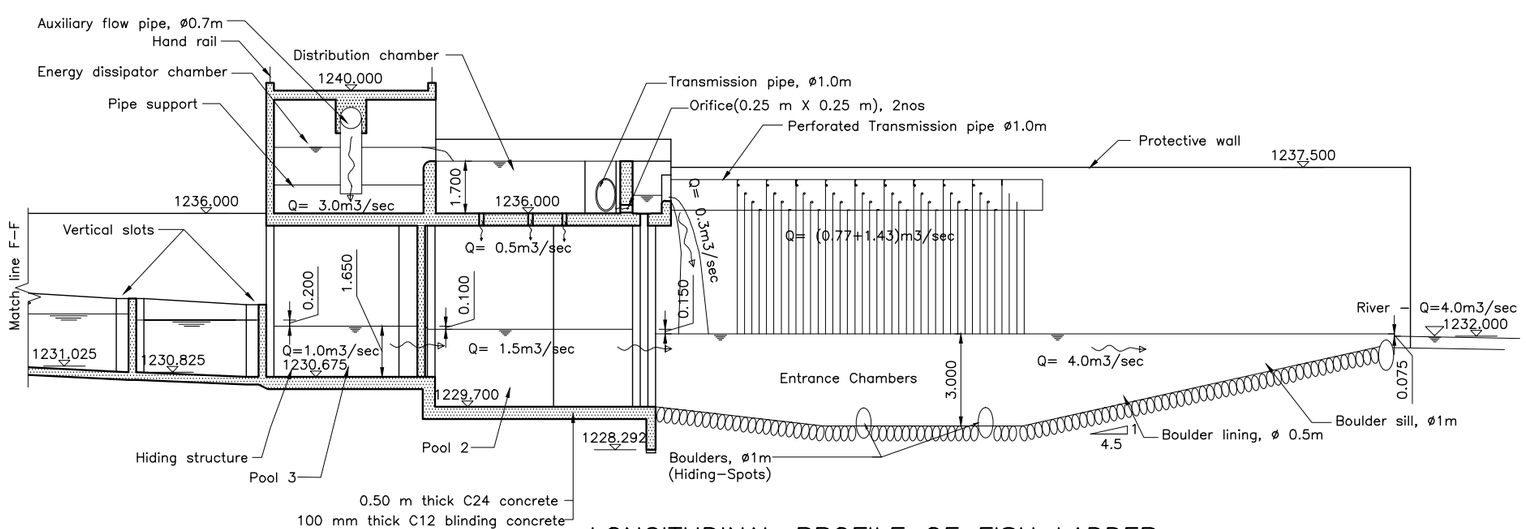
LAYOUT DRAWING OF FISH LADDER

PROFILE

DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-050-CVL-DG-49001	02 OF 19	0B

A3 (297 x 420 mm)





LONGITUDINAL PROFILE OF FISH LADDER

Scale 1:200

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m 2 0 2 4 6 8 m

Scale 1:200

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0	19.OCT.2022	FIRST ISSUE	DONG Z.Z.	K.J. KIM	Y.S.SON

PROJECT TITLE

Upper Trishuli-1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE / Jade CONSULT

CONTRACTOR

DOOSAN Enerbility

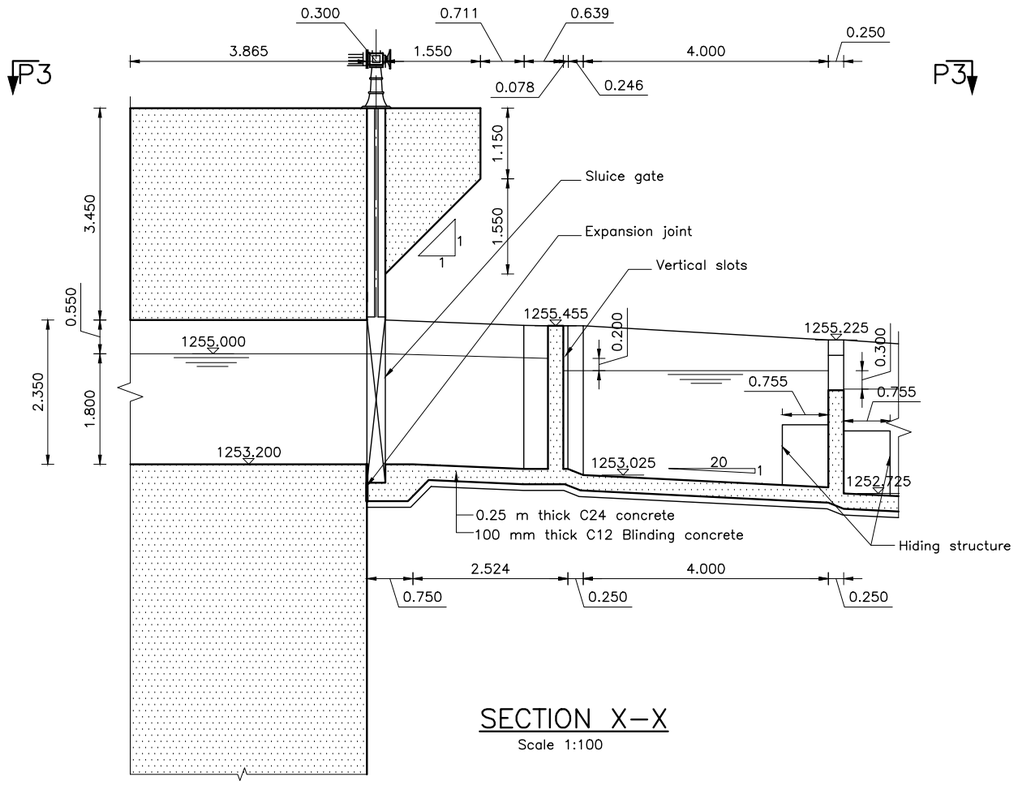
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

PROFILE

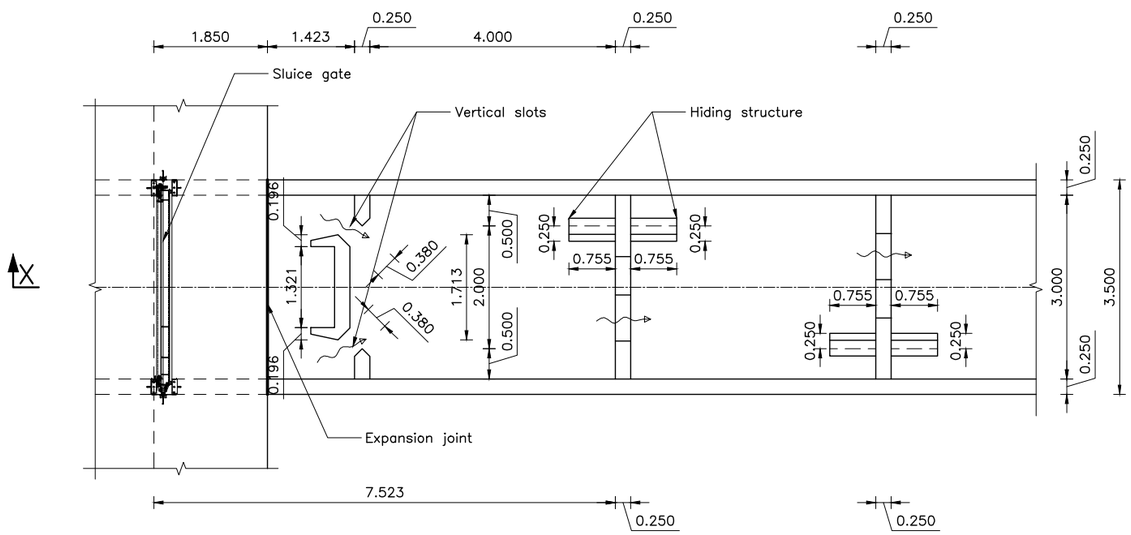
DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-050-CVL-DG-49001	03 OF 19	0B

A3 (297 x 420 mm)



SECTION X–X

Scale 1:100



PLAN P3–P3

Scale 1:100

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m 1 0 1 2 3 4 m

Scale 1:100

REFERENCE DRAWINGS

UT1-C-020-CVL-DG-44004-0A	CONCRETE OUTLINE DRAWING OF WEIR

SYMBOL AND LEGEND

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0	19.OCT.2022	FIRST ISSUE	DONG Z.Z.	K.J. KIM	Y.S.SON

PROJECT TITLE

Upper Trishuli-1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE

jade CONSULT

CONTRACTOR

DOOSAN Enerbility

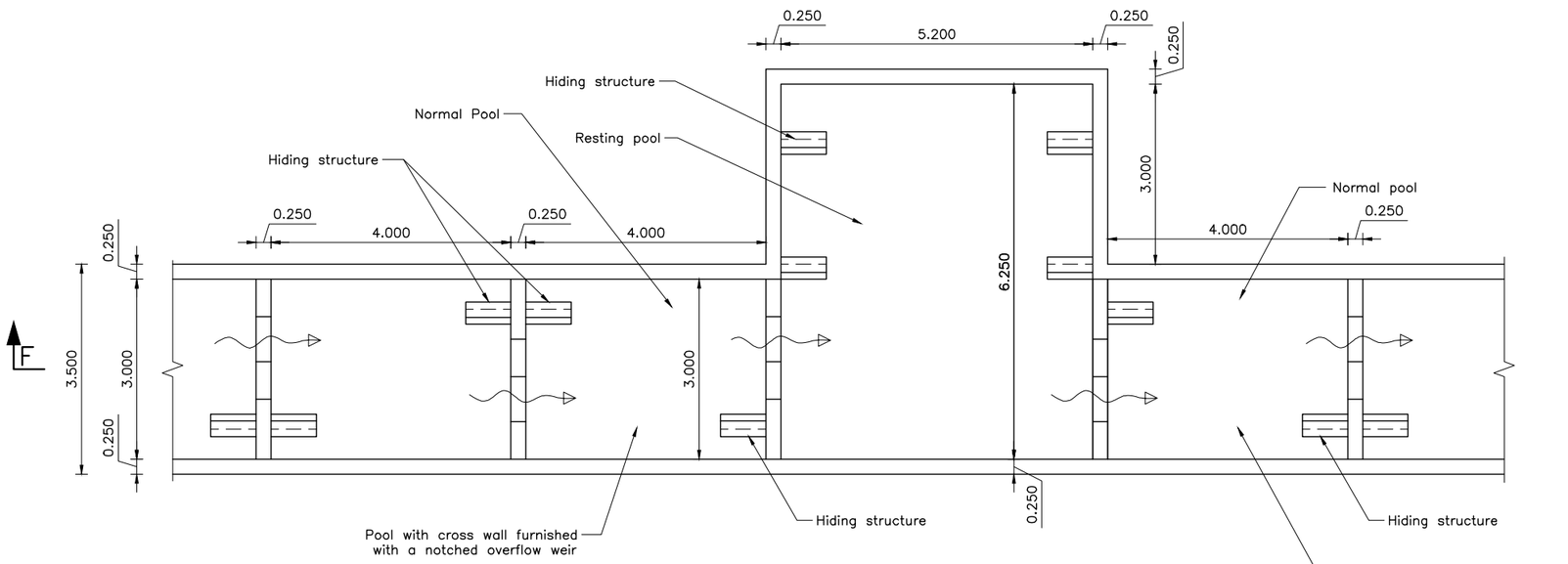
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

PLAN AND SECTION

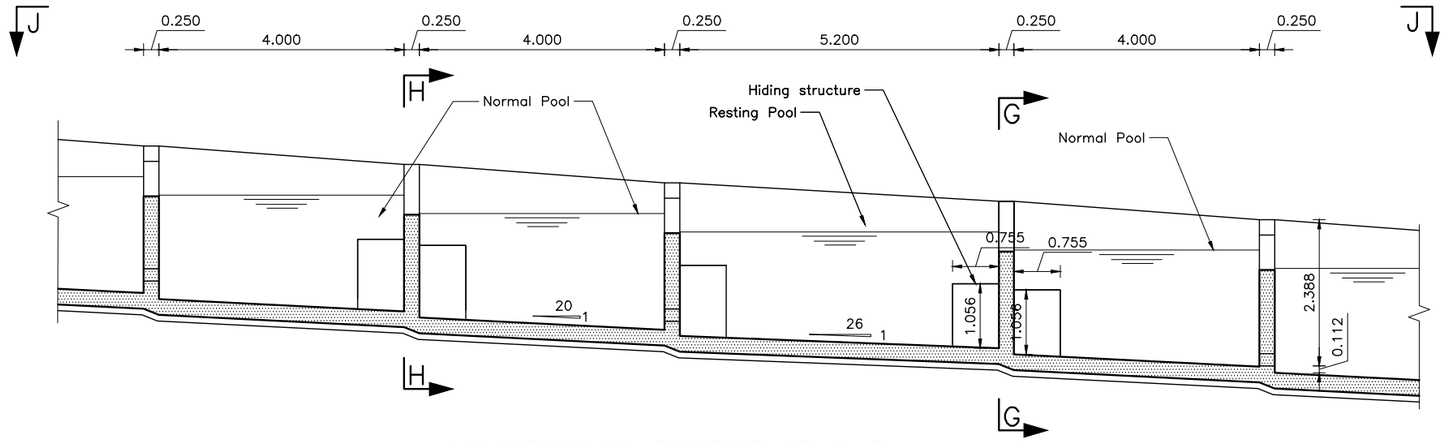
DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-050-CVL-DG-49001	04 OF 19	0B

A3 (297 x 420 mm)



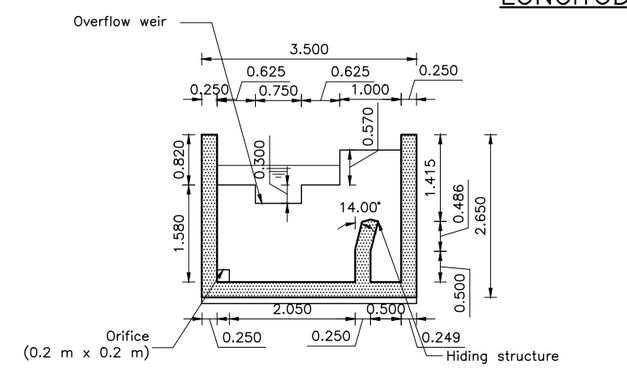
PLAN AT J–J
TYPICAL PLAN OF NORMAL AND RESTING POOL

Scale 1:100



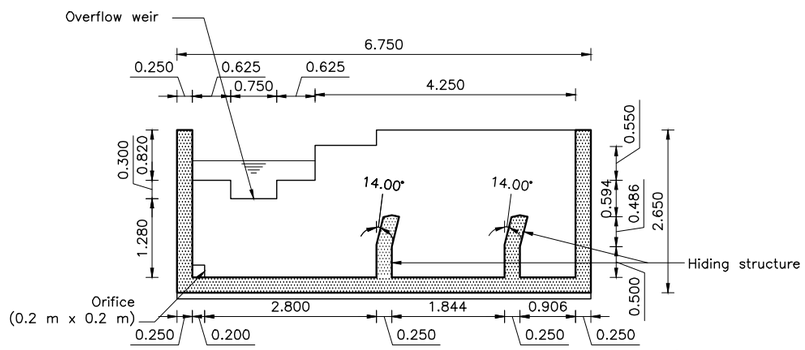
LONGITUDINAL PROFILE AT F–F

Scale 1:100



TYPICAL SECTION OF NORMAL POOL (H–H)

Scale 1:100



TYPICAL SECTION OF RESTING POOL (G–G)

Scale 1:100

NOTE

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m 1 0 1 2 3 4 m

Scale 1:100

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- C50 Concrete
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0	19.OCT.2022	FIRST ISSUE	DONG Z.Z.	K.J. KIM	Y.S.SON

PROJECT TITLE

Upper Trishuli-1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE / jeda CONSULT

CONTRACTOR

DOOSAN Enerbility

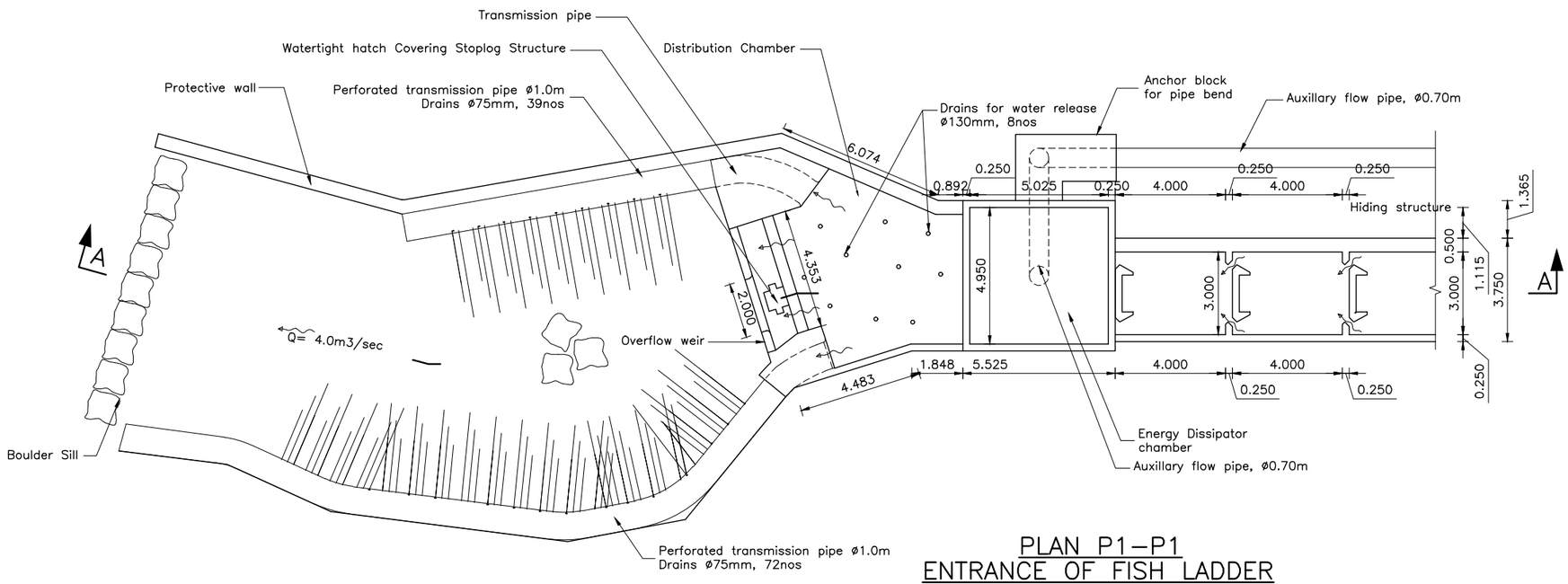
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

PLAN PROFILE AND SECTIONS

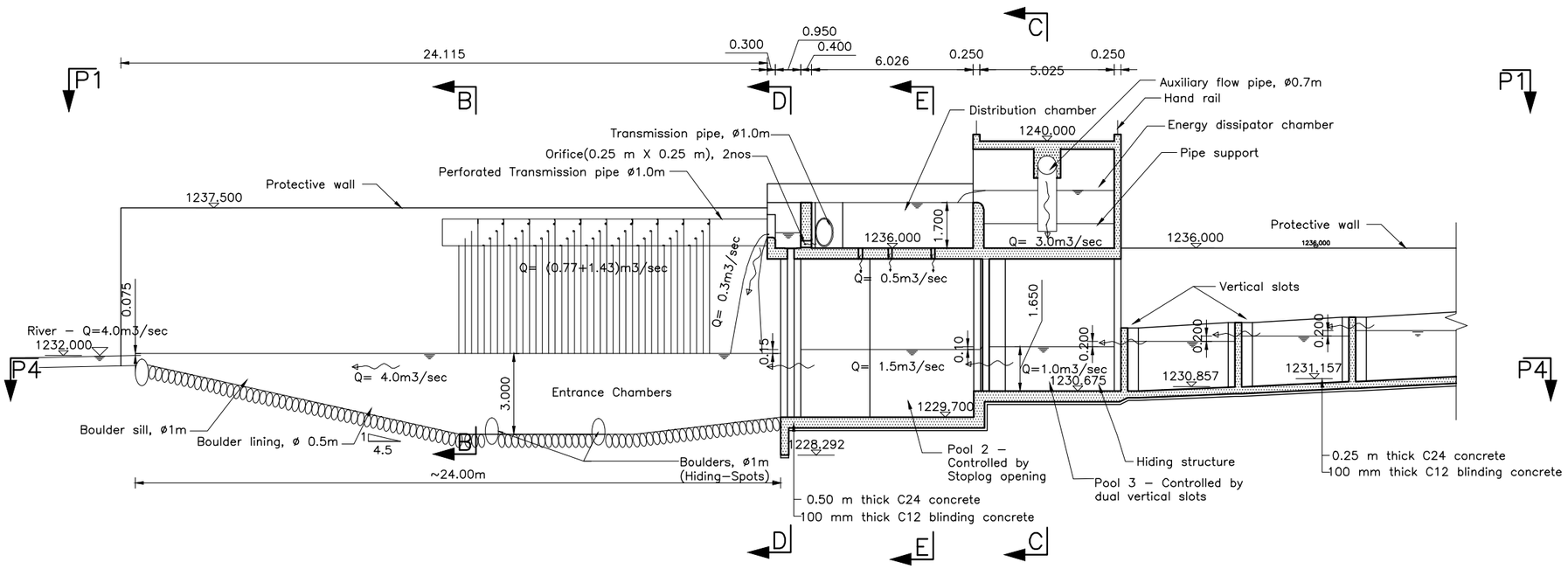
DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-050-CVL-DG-49001	05 OF 19	0B

A3 (297 x 420 mm)



PLAN P1–P1
ENTRANCE OF FISH LADDER
DOWNSTREAM

Scale 1:200



LONGITUDINAL SECTION AT A–A

Scale 1:200

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m 2 0 2 4 8 10m

Scale 1:200

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SYMBOL AND LEGEND

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- C30 Concrete
- C50 Concrete
- C18 Concrete
- Section lines

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PROJECT TITLE

Upper Trishuli–1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE · jede CONSULT

CONTRACTOR

DOOSAN Enerbility

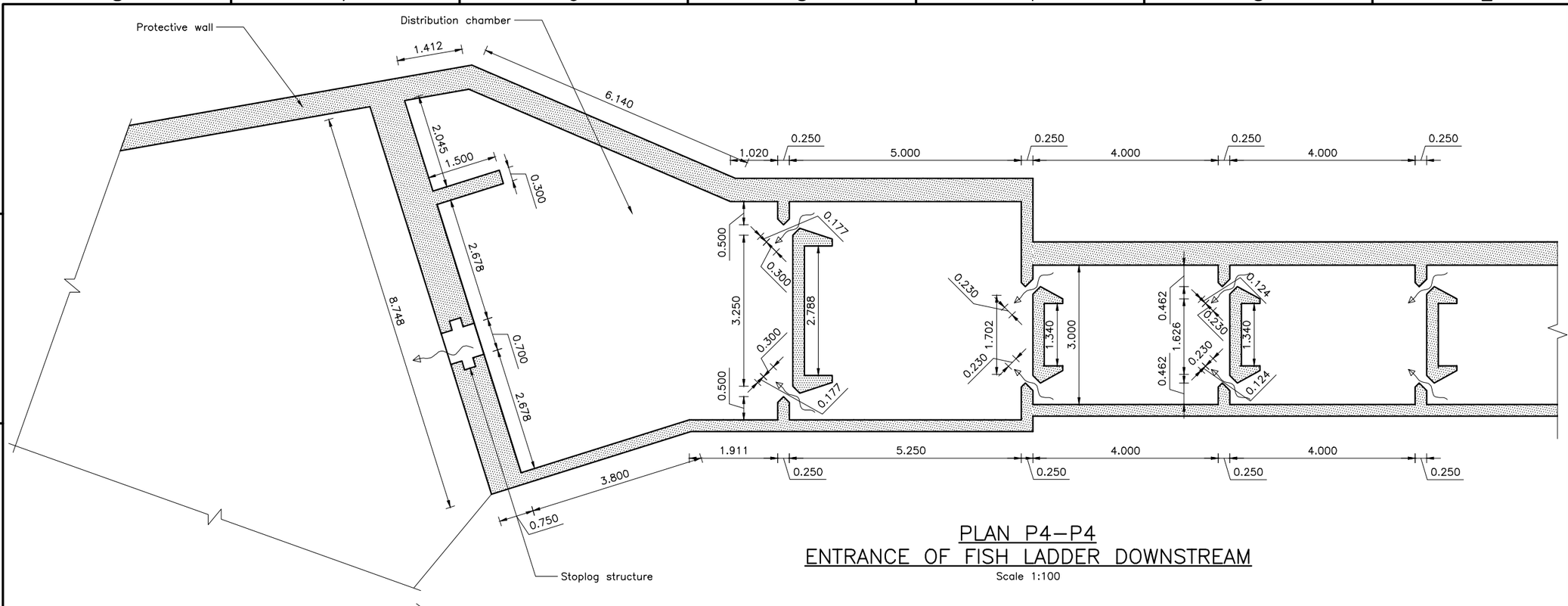
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

PLAN AND SECTION

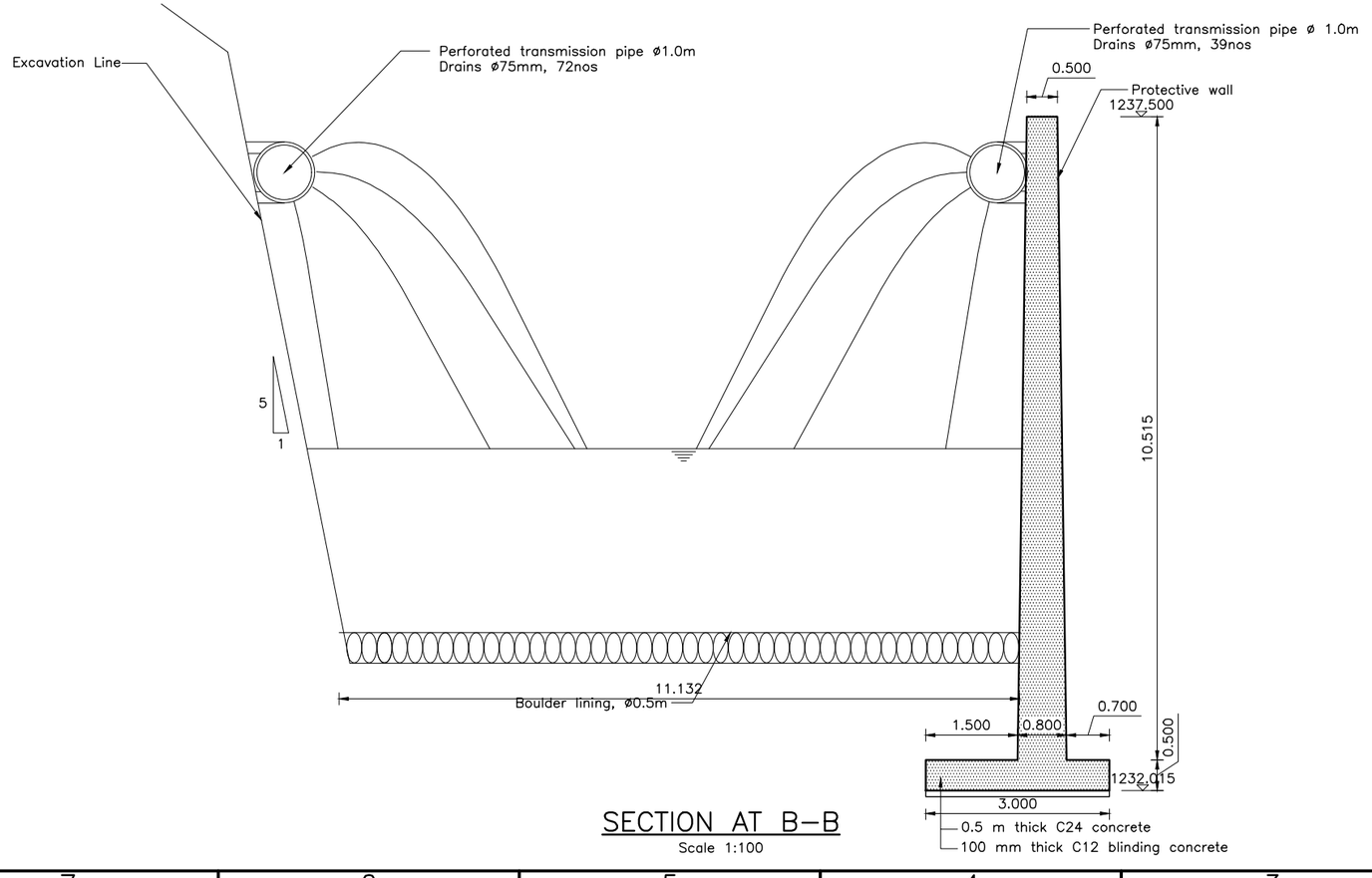
DRAWING NUMBER	SHEET NO.	REV. NO.
UT1–C–050–CVL–DG–49001	06 OF 19	0B

A3 (297 x 420 mm)



PLAN P4–P4
ENTRANCE OF FISH LADDER DOWNSTREAM

Scale 1:100



SECTION AT B–B

Scale 1:100

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m 1 0 1 2 3 4 m

Scale 1:100

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PROJECT TITLE

Upper Trishuli-1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE · JADE CONSULT

CONTRACTOR

DOOSAN Enerbility

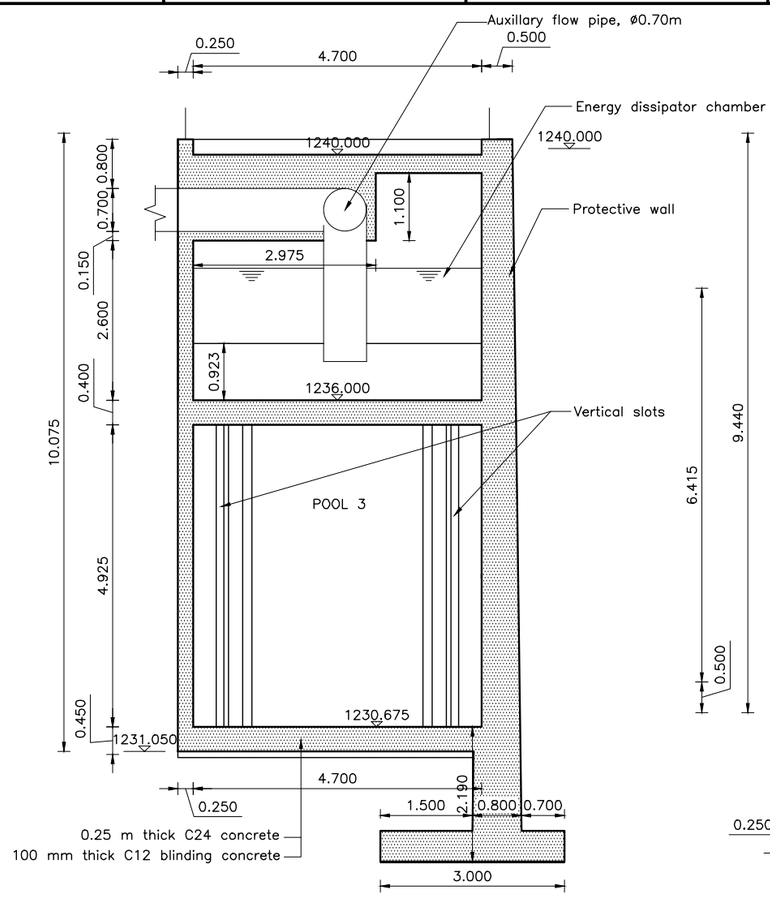
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

PLAN AND SECTION

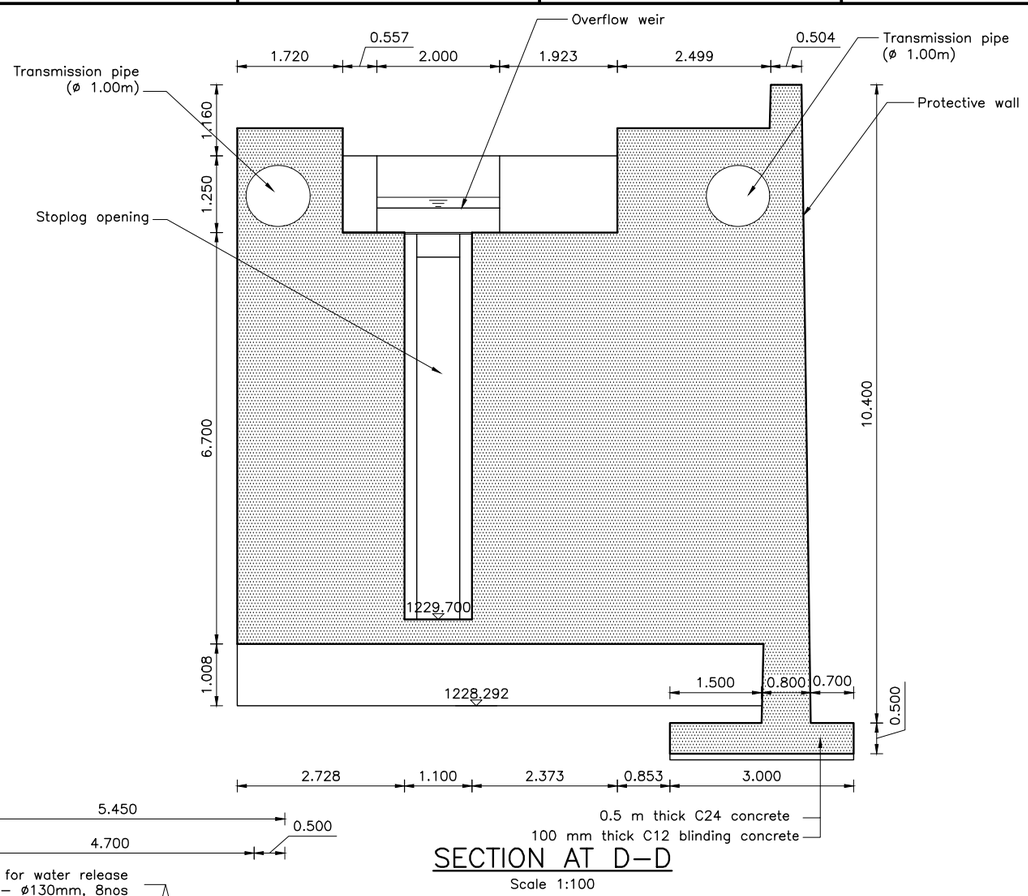
DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-050-CVL-DG-49001	07 OF 19	0B

A3 (297 x 420 mm)



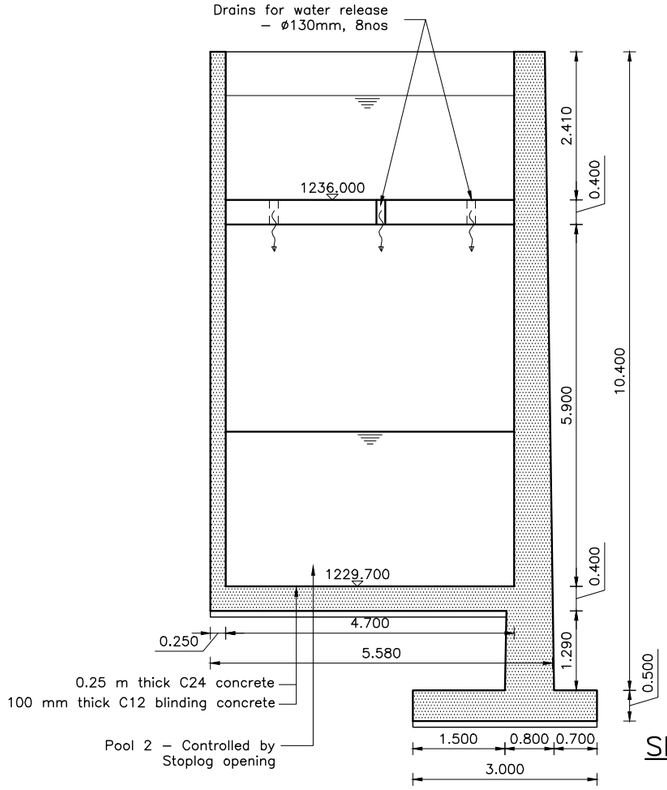
SECTION AT C–C

Scale 1:100



SECTION AT D–D

Scale 1:100



SECTION AT E–E

Scale 1:100

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m 1 0 1 2 3 4 m

Scale 1:100

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- Section lines

FOR APPROVAL

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REV. NO.	DATE	DESCRIPTION	DRAWN	CHKD.	APPD.
0B	14.NOV.2023	THIRD ISSUE	SHG/SOF/DS/DIP	B. CHOI	Y.S.SON
0A	05.JUNE.2023	SECOND ISSUE	LUO	B. CHOI	Y.S.SON
0	19.OCT.2022	FIRST ISSUE	DONG Z.Z.	K.J. KIM	Y.S.SON

PROJECT TITLE

Upper Trishuli–1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE · Jade Consult

CONTRACTOR

DOOSAN Enerbility

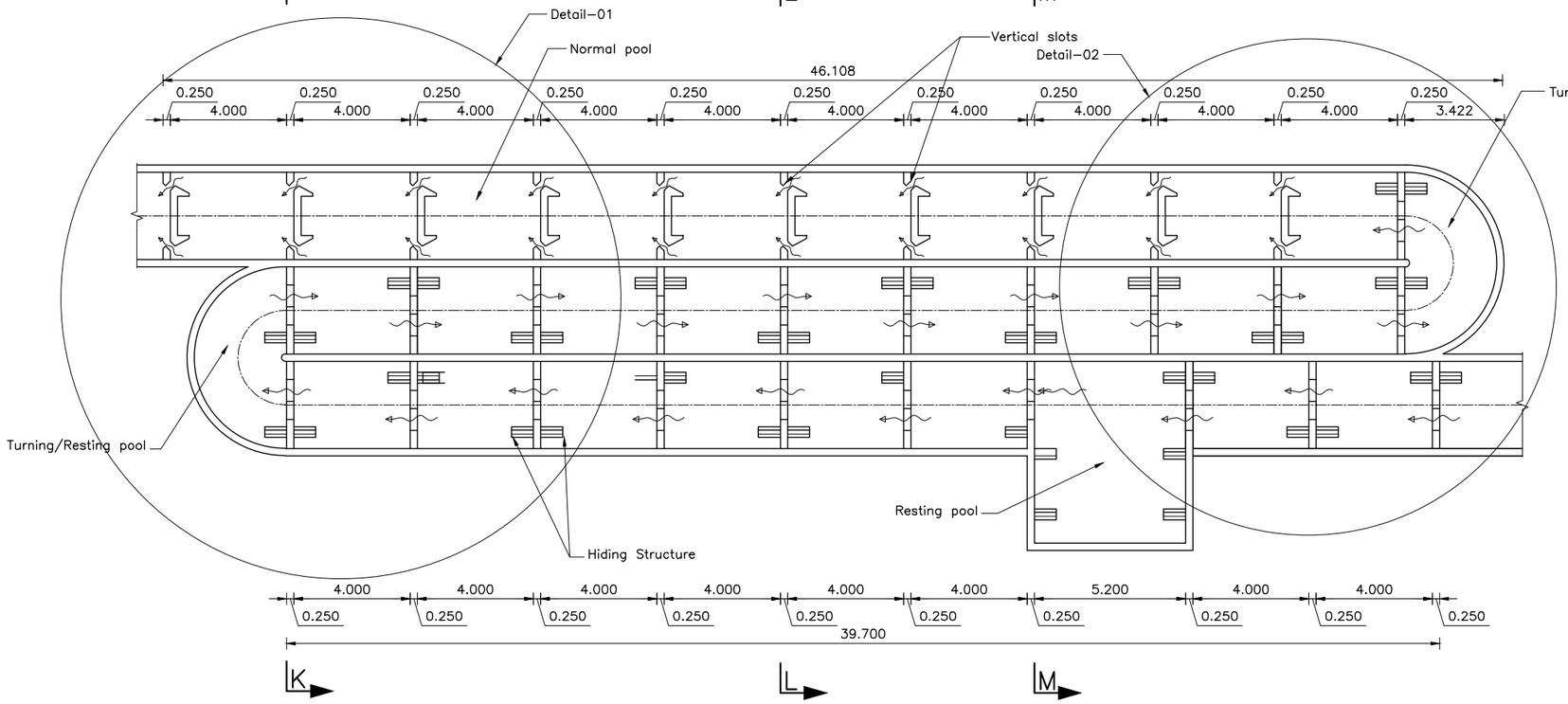
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

SECTIONS

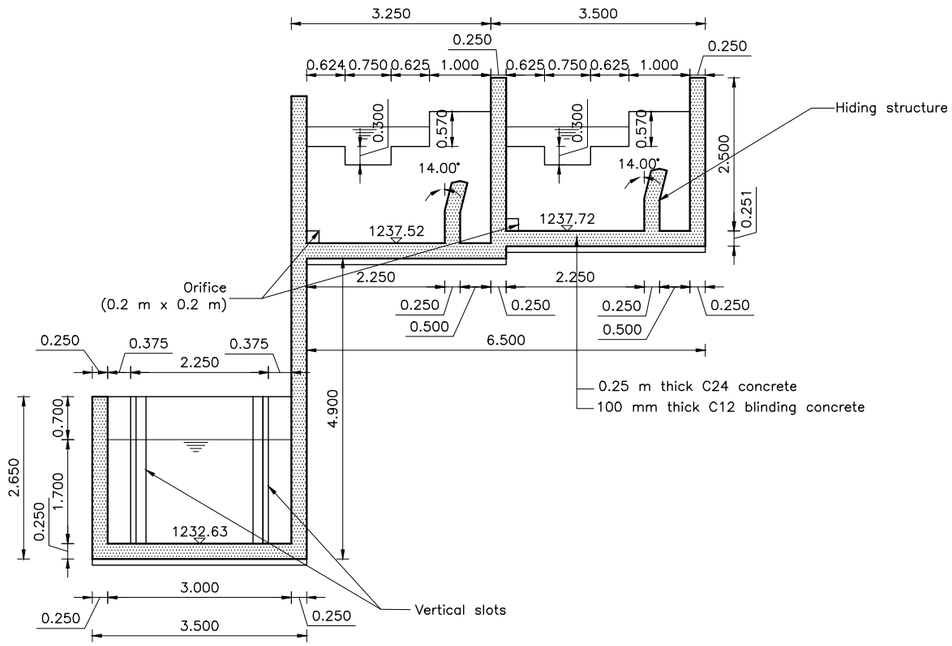
DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-050-CVL-DG-49001	08 OF 19	0B

A3 (297 x 420 mm)



PLAN P2–P2 (SERPENTINE PART)

Scale 1:200



SECTION AT K–K

Scale 1:100

NOTE

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6. Hydro mechanical structures shown in drawing are only for reference.

m1 0 1 2 3 4 m

Scale 1:100

m2 0 2 4 6 8 m

Scale 1:200

REFERENCE DRAWINGS

UT1–C–020–CVL–DG–44004–0A	CONCRETE OUTLINE DRAWING OF WEIR

SYMBOL AND LEGEND

- C24/Primary Concreting
- Backfill
- C21 Concrete
- Elevation lines
- C30 Concrete
- C50 Concrete
- C18 Concrete
- Section lines

FOR APPROVAL

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0	19.OCT.2022	FIRST ISSUE	DONG Z.Z.	K.J.KIM	Y.S.SON

PROJECT TITLE

Upper Trishuli–1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE · JADE CONSULT

CONTRACTOR

DOOSAN Enerbility

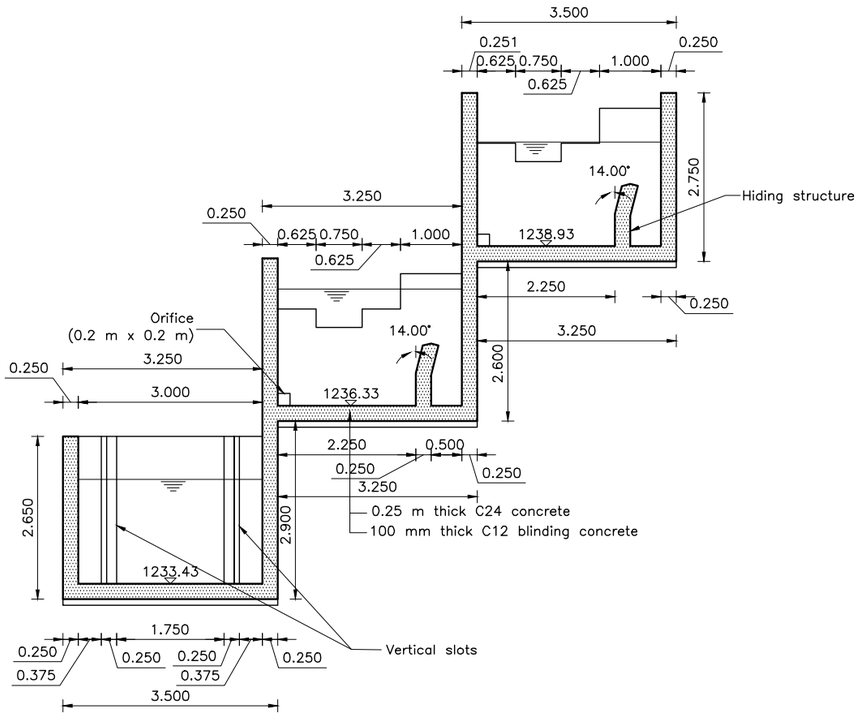
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

PLAN AND SECTION

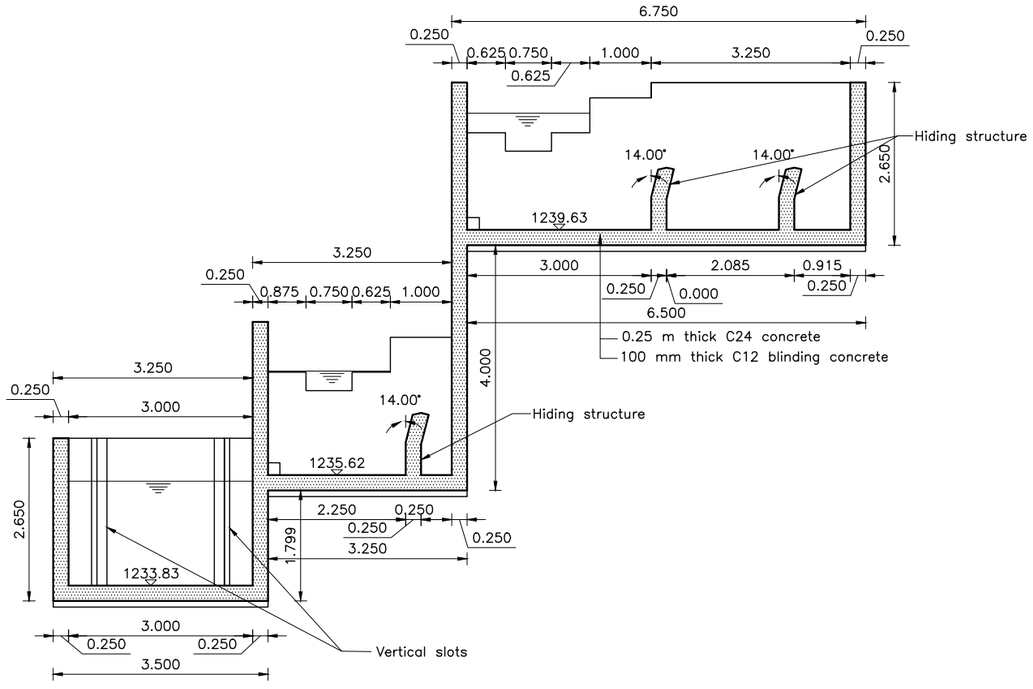
DRAWING NUMBER	SHEET NO.	REV. NO.
UT1–C–050–CVL–DG–49001	09 OF 19	0B

A3 (297 x 420 mm)



SECTION AT L–L

Scale 1:100



SECTION AT M–M

Scale 1:100

NOTE

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6. Hydro mechanical structures shown in drawing are only for reference.

m 1 0 1 2 3 4 m

Scale 1:100

REFERENCE DRAWINGS

UT1-C-020-CVL-DG-44004-0A	CONCRETE OUTLINE DRAWING OF WEIR

SYMBOL AND LEGEND

- C24/Primary Concreting
- Backfill
- C21 Concrete
- Elevation lines
- C30 Concrete
- C50 Concrete
- C18 Concrete
- Section lines

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0	19.OCT.2022	FIRST ISSUE	DONG Z.Z.	K.J. KIM	Y.S.SON

PROJECT TITLE

Upper Trishuli-1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE · jade CONSULT

CONTRACTOR

DOOSAN Enerbility

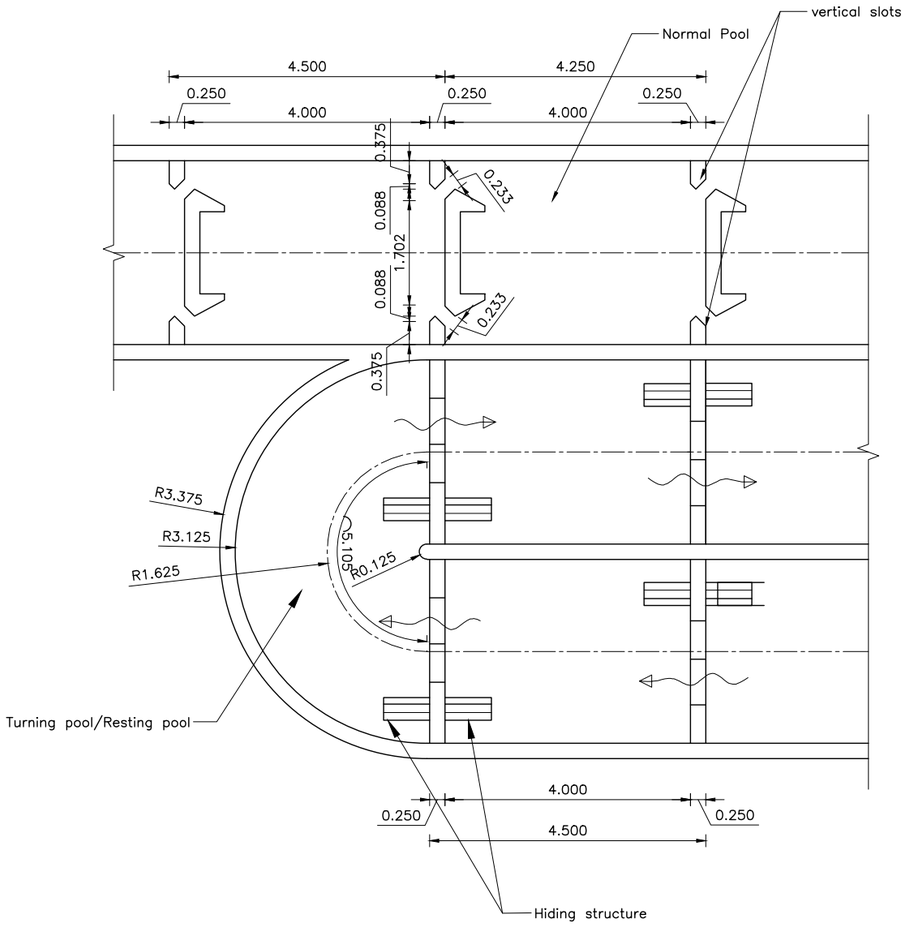
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

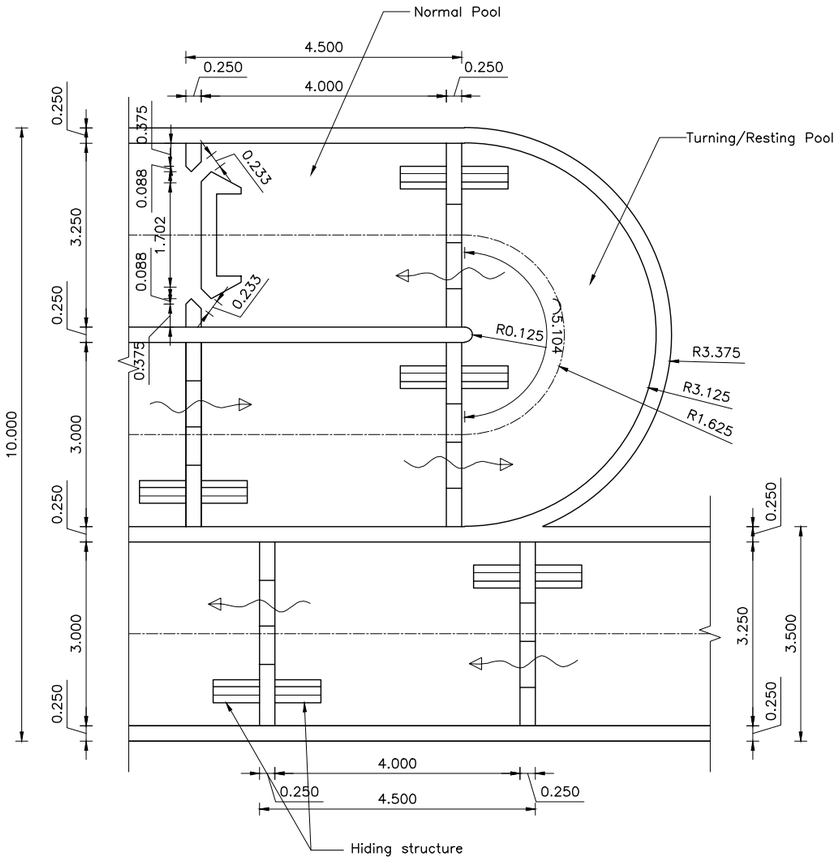
SECTIONS

DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-050-CVL-DG-49001	10 OF 19	0B

A3 (297 x 420 mm)



DETAIL–01
Scale 1:100



DETAIL–02
Scale 1:100

NOTE

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6. Hydro mechanical structures shown in drawing are only for reference.

m 1 0 1 2 3 4 m

Scale 1:100

REFERENCE DRAWINGS

UT1–C–020–CVL–DG–44004–0A	CONCRETE OUTLINE DRAWING OF WEIR

SYMBOL AND LEGEND

- C24/Primary Concreting
- Backfill
- C21 Concrete
- Elevation lines
- C30 Concrete
- C50 Concrete
- C18 Concrete
- Section lines

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0	19.OCT.2022	FIRST ISSUE	DONG Z.Z.	K.J. KIM	Y.S.SON

PROJECT TITLE

Upper Trishuli–1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGINEERING, JADE CONSULT

CONTRACTOR

DOOSAN Enerbility

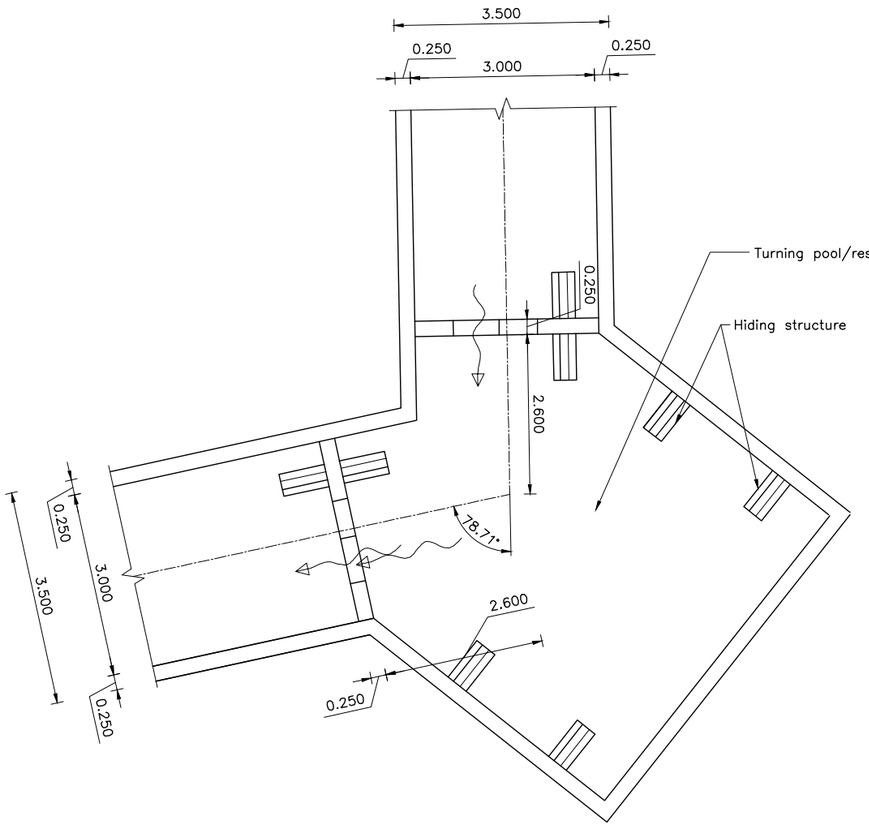
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

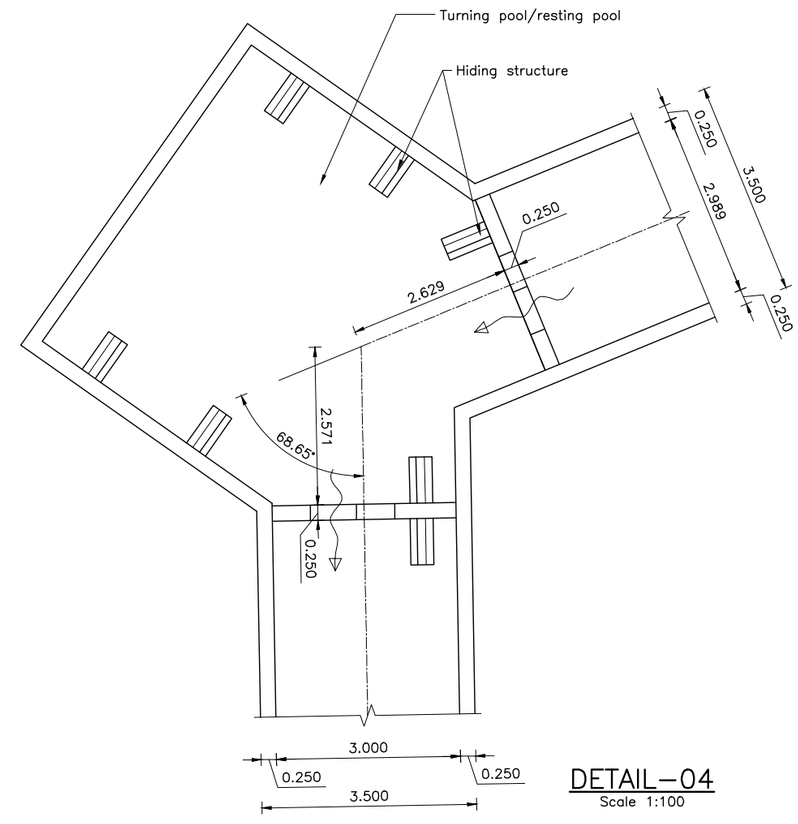
DETAILS

DRAWING NUMBER	SHEET NO.	REV. NO.
UT1–C–050–CVL–DG–49001	11 OF 19	0B

A3 (297 x 420 mm)



DETAIL–03
Scale 1:100



DETAIL–04
Scale 1:100

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5. The access road to the weir, location of the weir control building and observation room shall be finalized after the approval of the upstream and downstream fish ladder arrangement.
6. Hydro mechanical structures shown in drawing are only for reference.

m 1 0 1 2 3 4 m

Scale 1:100

REFERENCE DRAWINGS

UT1-C-020-CVL-DG-44004-0A	CONCRETE OUTLINE DRAWING OF WEIR

SYMBOL AND LEGEND

- C24/Primary Concreting
- Backfill
- C21 Concrete
- Elevation lines
- C30 Concrete
- C50 Concrete
- C18 Concrete
- Section lines

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0	19.OCT.2022	FIRST ISSUE	DONG Z.Z.	K.J. KIM	Y.S.SON

PROJECT TITLE

Upper Trishuli-1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE

JADE CONSULT

CONTRACTOR

DOOSAN Enerbility

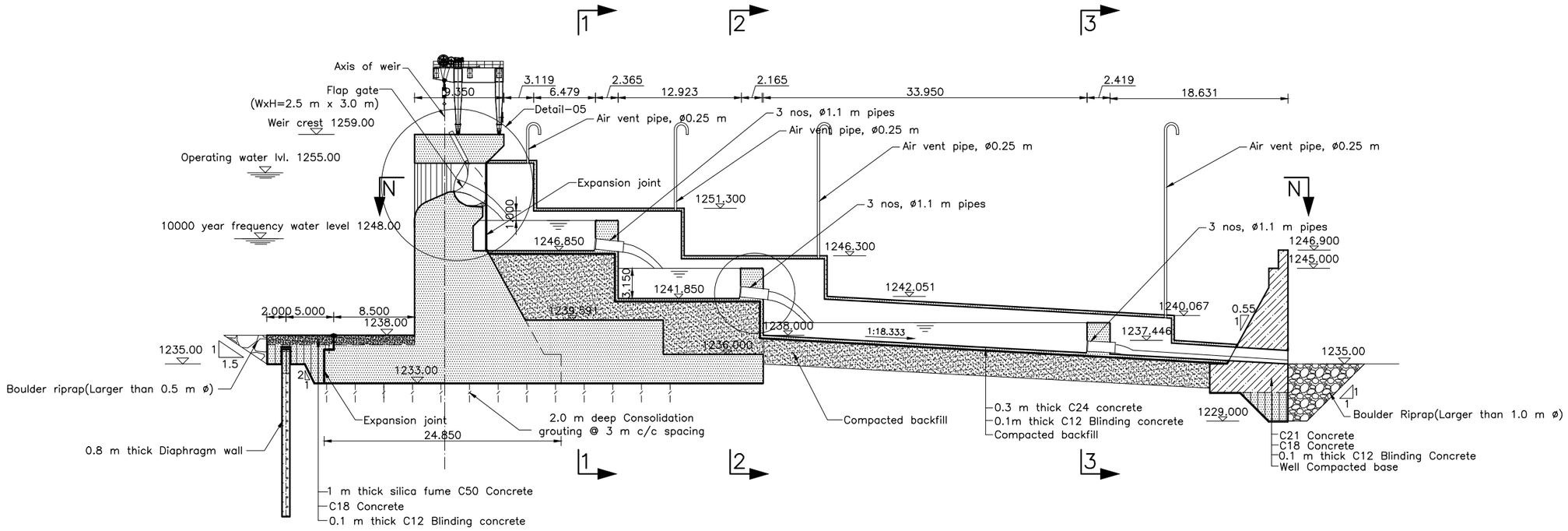
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

DETAILS

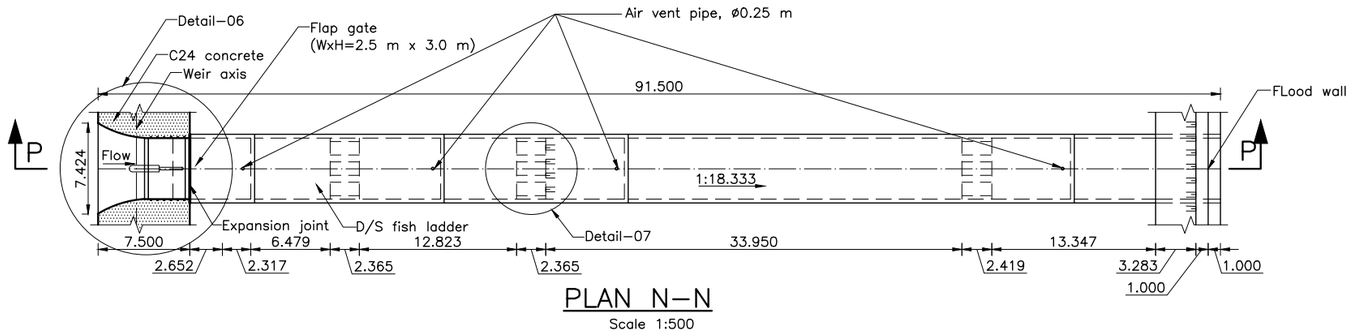
DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-050-CVL-DG-49001	12 OF 19	0B

A3 (297 x 420 mm)



LONGITUDINAL PROFILE P–P OF D/S FISH LADDER

Scale 1:500



PLAN N–N

Scale 1:500

NOTE

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6. Hydro mechanical structures shown in drawing are only for reference.

m 5 0 5 10 15 20m

Scale=1:500

m 2 0 2 4 6 8 m

Scale=1:200

REFERENCE DRAWINGS

UT1–C–020–CVL–DG–44004–0A	CONCRETE OUTLINE DRAWING OF WEIR

SYMBOL AND LEGEND

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- Backfill
- C21 Concrete
- Elevation lines
- C30 Concrete
- C50 Concrete
- C18 Concrete
- Section lines

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0	19.OCT.2022	FIRST ISSUE	DONG Z.Z.	K.J. KIM	Y.S.SON

PROJECT TITLE

Upper Trishuli–1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE

jade CONSULT

CONTRACTOR

DOOSAN Enerbility

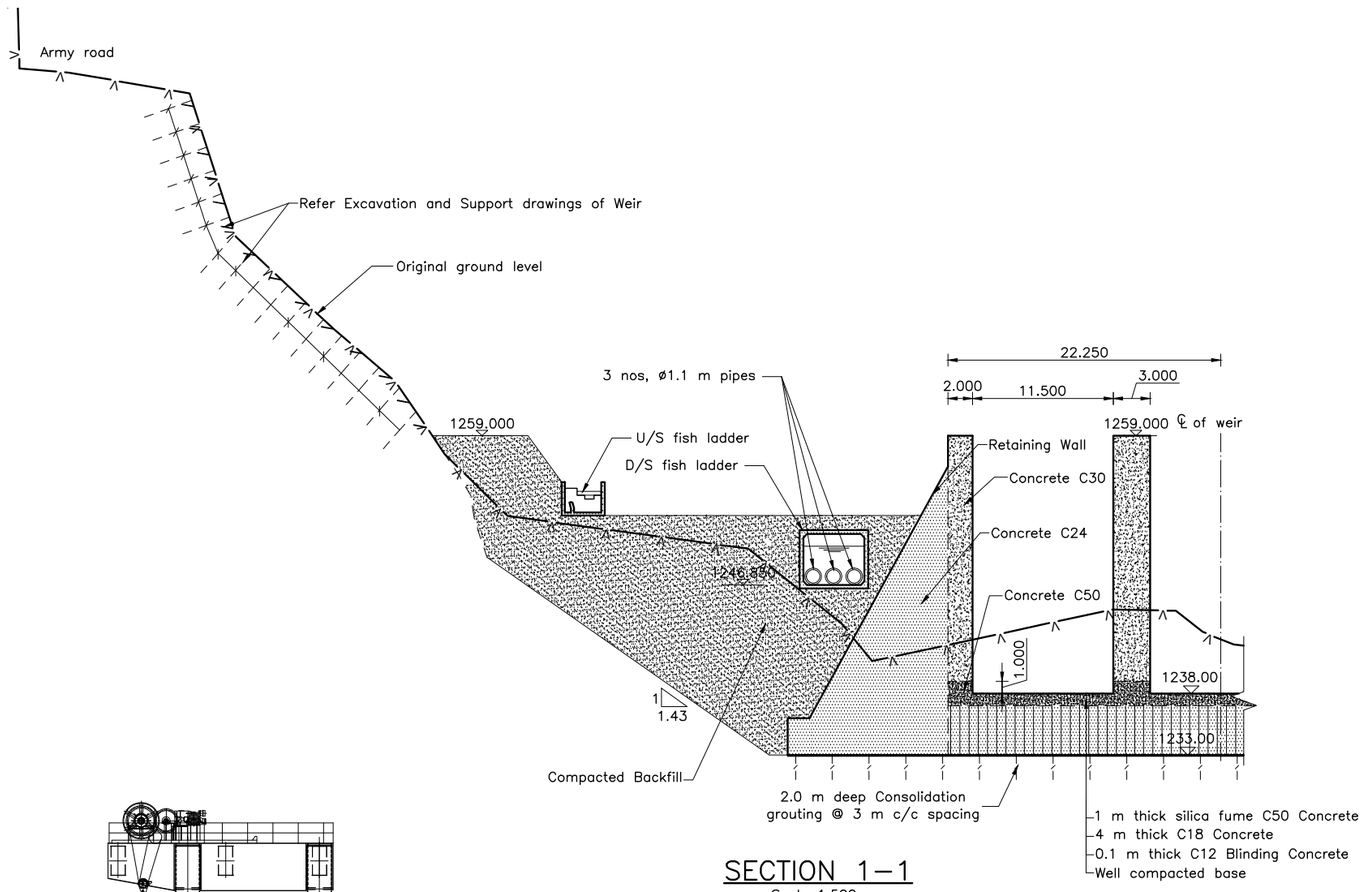
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

PLAN AND PROFILE

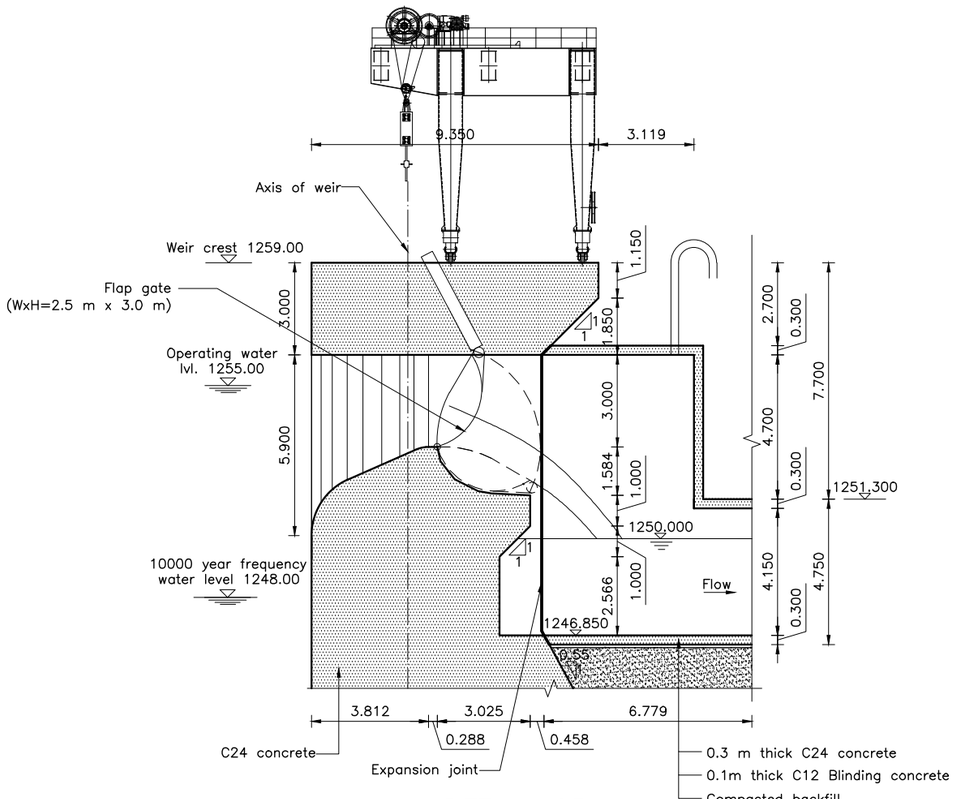
DRAWING NUMBER	SHEET NO.	REV. NO.
UT1–C–050–CVL–DG–49001	13 OF 19	0B

A3 (297 x 420 mm)



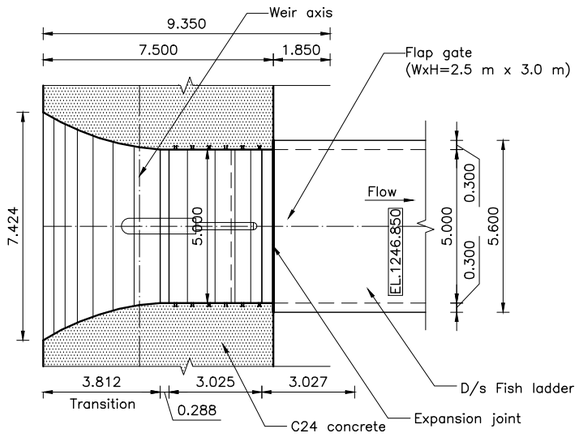
SECTION 1–1

Scale 1:500



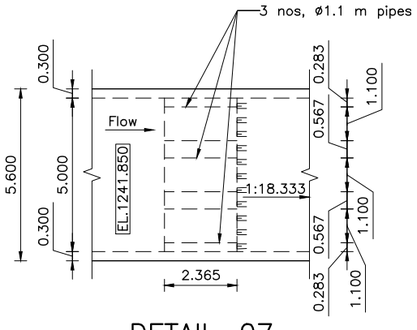
DETAIL–05

Scale 1:200



DETAIL–06

Scale 1:200



DETAIL–07

Scale 1:200

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m 5 0 5 10 15 20m

Scale=1:500

m 2 0 2 4 6 8 m

Scale=1:200

REFERENCE DRAWINGS

UT1-C-020-CVL-DG-44004-0A	CONCRETE OUTLINE DRAWING OF WEIR

SYMBOL AND LEGEND

- C24/Primary Concreting
- Backfill
- C21 Concrete
- Elevation lines
- C30 Concrete
- C50 Concrete
- C18 Concrete
- Section lines

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PROJECT TITLE

Upper Trishuli-1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE

JADE CONSULT

CONTRACTOR

DOOSAN Enerbility

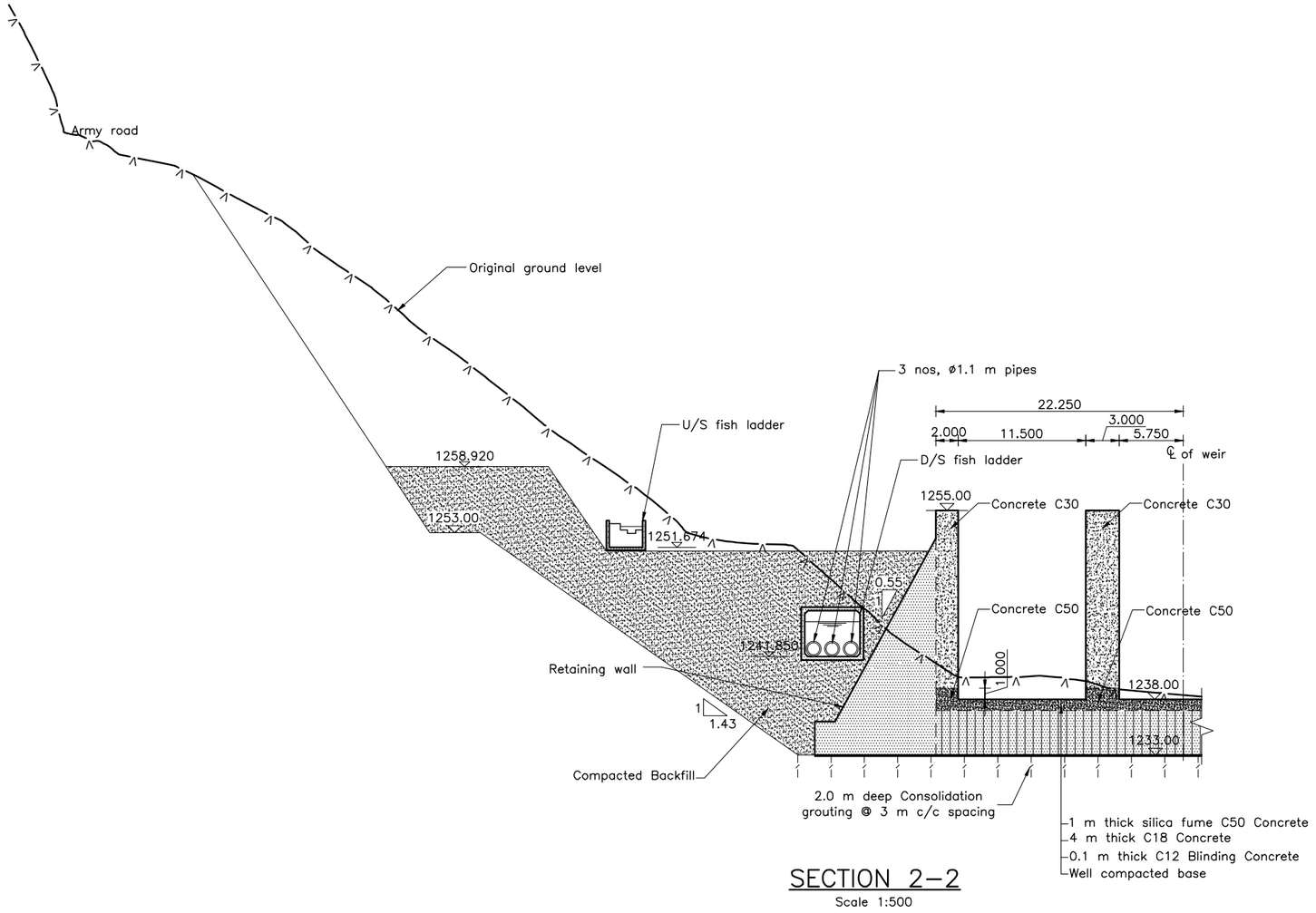
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

SECTION AND DETAILS

DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-050-CVL-DG-49001	14 OF 19	0B

A3 (297 x 420 mm)



SECTION 2–2

Scale 1:500

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m 5 0 5 10 15 20m

Scale 1:500

REFERENCE DRAWINGS

UT1-C-020-CVL-DG-44004-0A	CONCRETE OUTLINE DRAWING OF WEIR

SYMBOL AND LEGEND

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- Backfill
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- Elevation lines
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PROJECT TITLE

Upper Trishuli-1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGINEERING JADE CONSULT

CONTRACTOR

DOOSAN Enerbility

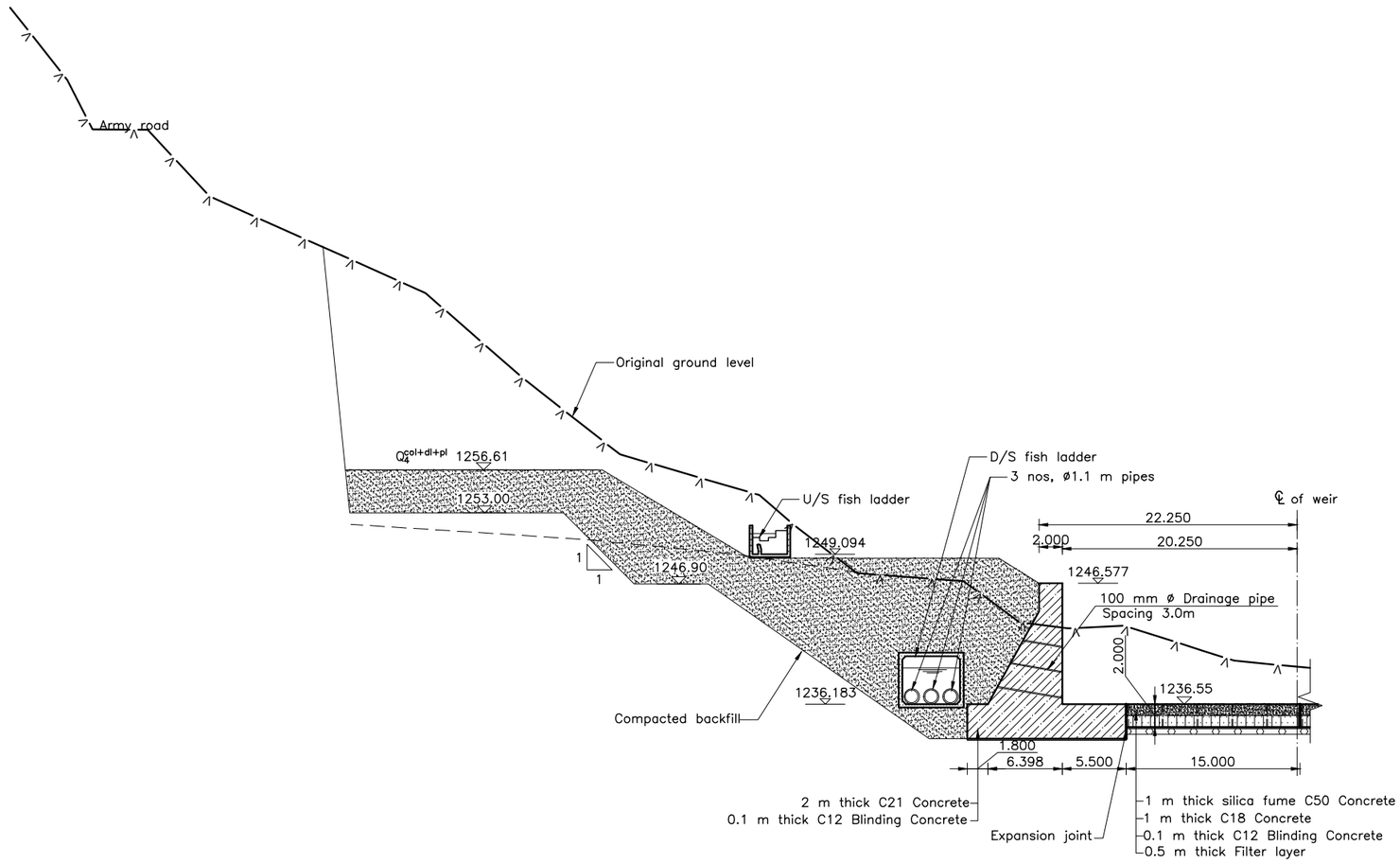
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

SECTION

DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-050-CVL-DG-49001	15 OF 19	0B

A3 (297 x 420 mm)



SECTION 3–3
Scale 1:500

NOTE

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m 5 0 5 10 15 20m

Scale 1:500

REFERENCE DRAWINGS

UT1-C-020-CVL-DG-44004-0A	CONCRETE OUTLINE DRAWING OF WEIR

SYMBOL AND LEGEND

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- Backfill
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- Elevation lines
- C30 Concrete
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- Section lines

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PROJECT TITLE

Upper Trishuli–1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE · jade CONSULT

CONTRACTOR

DOOSAN Enerbility

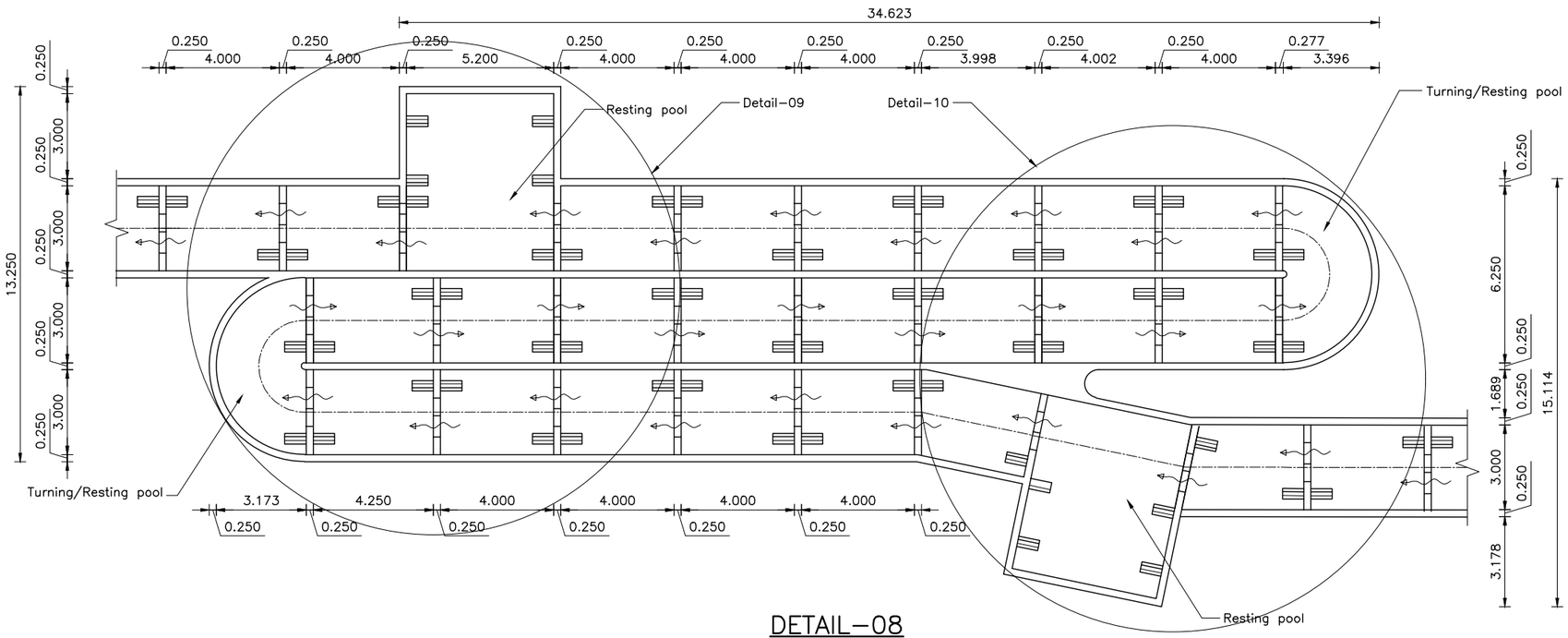
DRAWING TITLE

LAYOUT DRAWING OF FISH LADDER

SECTION

DRAWING NUMBER	SHEET NO.	REV. NO.
UT1-C-050-CVL-DG-49001	16 OF 19	0B

A3 (297 x 420 mm)



DETAIL-08

Scale 1:200

NOTE

1. All dimensions are in m, levels are in m above msl unless otherwise mentioned.
2. The size of the upstream and downstream fish ladders are based on the hydraulic sizing. The actual thickness of the walls and base slab shall be finalized after the structural design.
3. The flood wall arrangement provided adjacent to entrance pool of upstream fish ladder(at the left bank of river) is only for reference. the actual size of the wall shall be finalized after design.
4. The arrangement of the auxiliary flow pipe and anchor block is subjected to change as per the structural design of the fish ladder.
5. The access road to the weir, location of the weir control building and observation room shall be finalized after the approval of the upstream and downstream fish ladder arrangement.
6. Hydro mechanical structures shown in drawing are only for reference.

m 2 0 2 4 8 10m

Scale 1:200

REFERENCE DRAWINGS

UT1-C-020-CVL-DG-44004-0A	CONCRETE OUTLINE DRAWING OF WEIR

SYMBOL AND LEGEND

- C24/Primary Concreting
- Backfill
- C21 Concrete
- Elevation lines
- C30 Concrete
- C50 Concrete
- C18 Concrete
- Section lines

FOR APPROVAL

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REV. NO.	DATE	DESCRIPTION	DRAWN	CHKD.	APPD.
0B	14.NOV.2023	THIRD ISSUE	SHG/SeF/ DS/DIP	B. CHOI	Y.S.SON
0A	05.JUNE.2023	SECOND ISSUE	LUO	B. CHOI	Y.S.SON
0	19.OCT.2022	FIRST ISSUE	DONG Z.Z.	K.J. KIM	Y.S.SON

PROJECT TITLE

Upper Trishuli-1 HEP (216 MW)

OWNER

NWEDC

OWNER'S ENGINEER

TRACTEBEL ENGIE / Jade CONSULT

CONTRACTOR

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DRAWING TITLE

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PLAN

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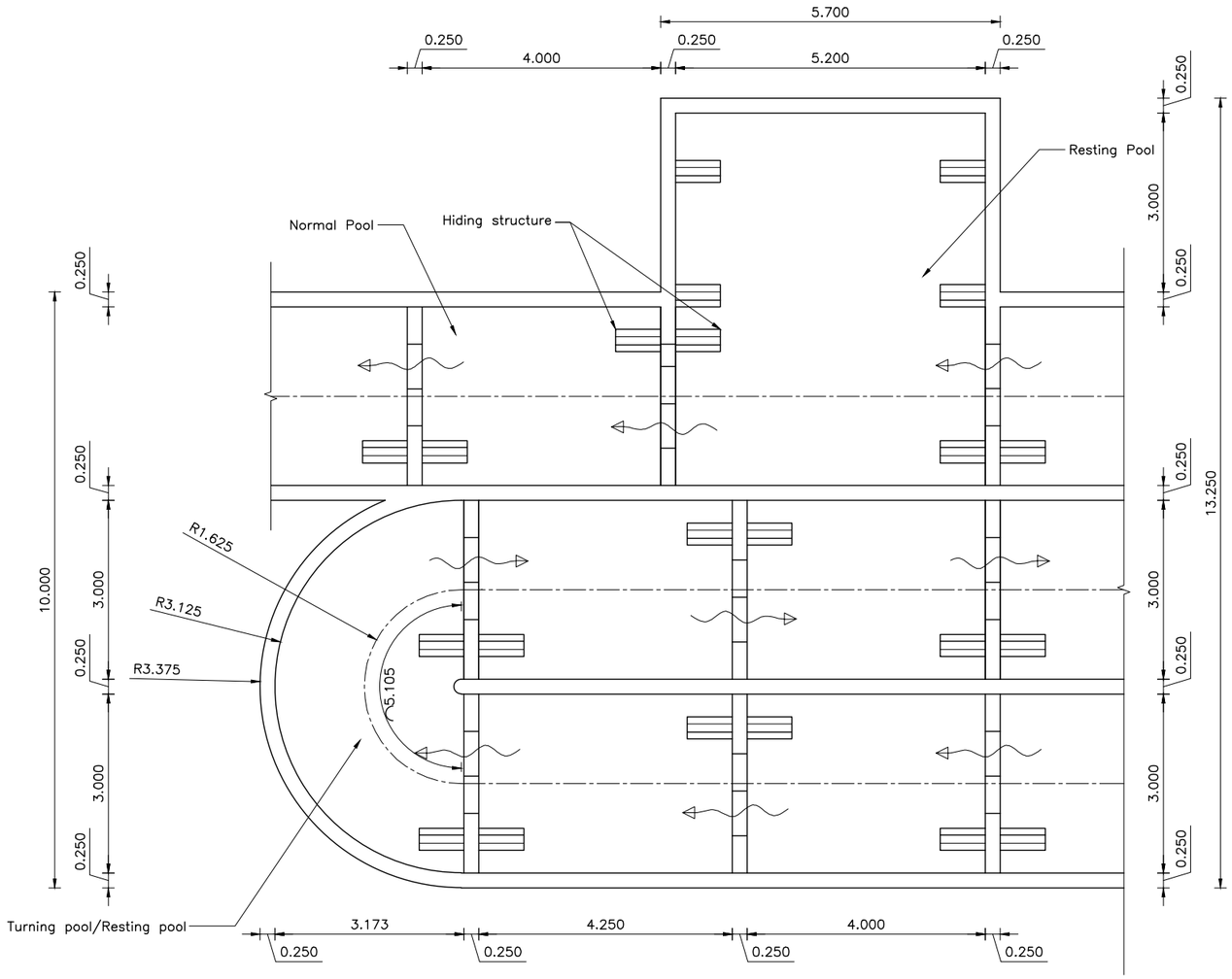

DETAIL–09

Scale 1:100

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m 1 0 1 2 3 4 m

Scale 1:100

REFERENCE DRAWINGS

UT1-C-020-CVL-DG-44004-0A	CONCRETE OUTLINE DRAWING OF WEIR

SYMBOL AND LEGEND

C24/Primary Concreting — C30 Concrete
Backfill — C50 Concrete
C21 Concrete — C18 Concrete
Elevation lines — Section lines

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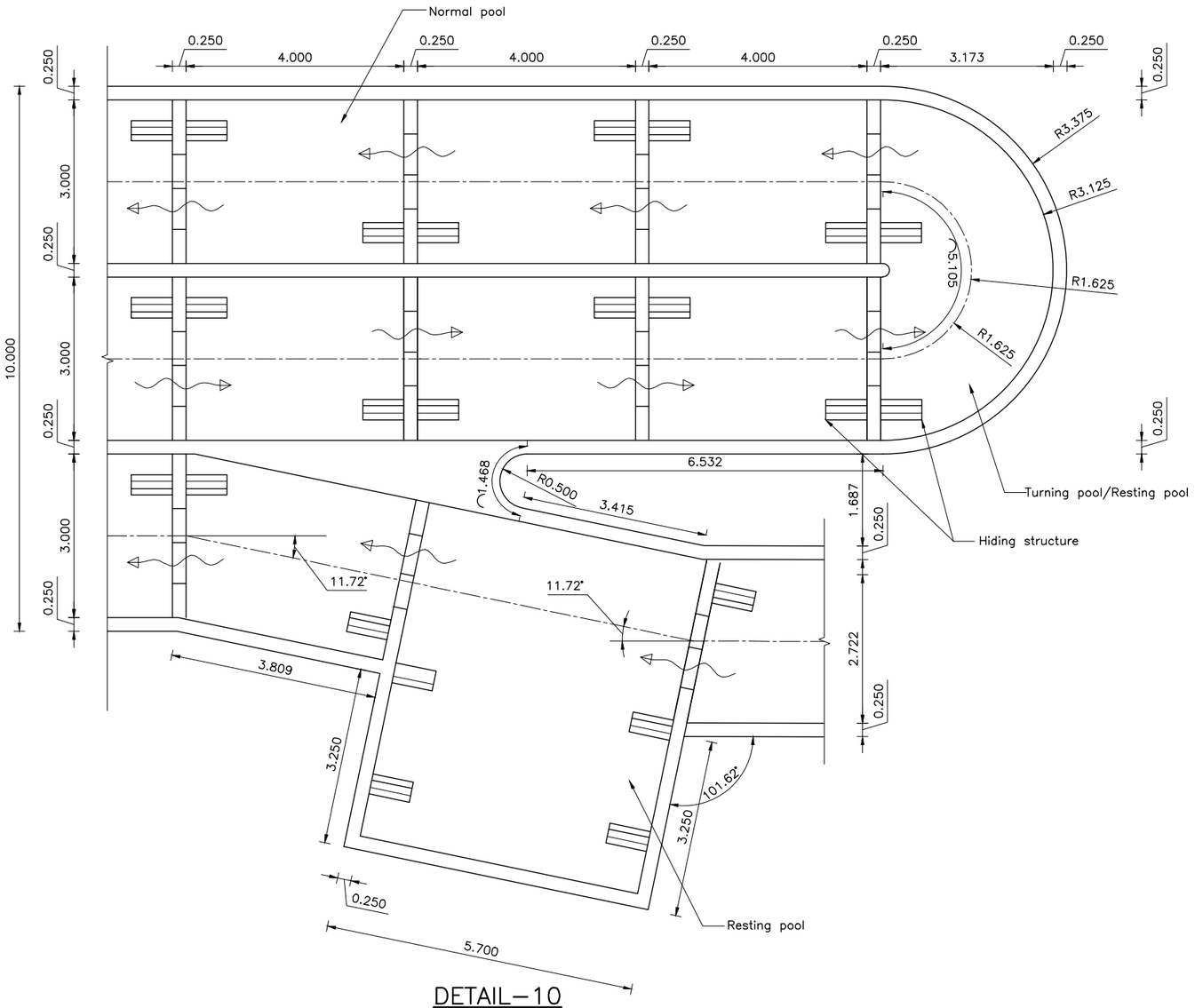

DETAIL–10

Scale 1:100

NOTE

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Scale 1:100

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